

SOCOM244-005: Advanced Manufacturing for Common Launch Container

ADDITIONAL INFORMATION

N/A

TECHNOLOGY AREAS:

Materials | Weapons

MODERNIZATION PRIORITIES:

Advanced Materials

KEYWORDS:

Additive Manufacturing; rapid iteration; advanced manufacturing, advanced materials; munition storage; munition transport

OBJECTIVE:

The objective of this topic is to develop applied research toward an innovative capability to use advanced manufacturing and iterative design to enable a Common Launch Container to meet the military specification requirements for storage, transportation, and munition launch.

IMPORTANT: For SOCOM instructions: please visit: <https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/>. Go to the bottom of the page and click "DoD SBIR 24.4". Once there, go to the SOCOM SBIR 24.4.

ITAR:

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with section 3.5 of the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

DESCRIPTION:

As a part of this feasibility study, the proposers shall address all viable overall system design options with respective specifications on the following key system attributes:

1. Develop an iterative design process and advanced manufacturing to design and validate a munition container for transportation, storage, and launch. (References 2, 3, 4, 6 & 7).
2. The munition(s) will be transported and launched from a standard Type-V Air Force pallets. (References 2 & 5).
3. The internal volume shall be designed to initially allow for the fit of a Government defined 250-lb class munition and be able to stack 8 across and 4 high on a standard Type-V Air Force pallets. (References 2, 5 & 7).
4. The system modularity should be designed to allow for future configuration changes to support an internal volume to fit of a 100-lb, 500-lb, and 1,000-lb class munitions. (References 2 & 7).
5. The system shall be designed to launch the munition at 12-18 feet per second from the pallet on the cargo ramp or pallet in free flight after cargo drop. (References 3, 4 & 6).
6. The system shall be designed to meet the environmental design requirements for internal aerial delivery in fixed wing aircraft. (References 1, 2, 5 & 6).
7. Future prototypes are expected to be built within one month of a design iteration.
8. Target production capability is a minimum of 50 units per month, three-month lead time, at \$25,000 average per unit cost or less. If the target production capability is not feasible, document maximum quantity, cost, and lead time and factors that affect those variables.
9. The system shall be designed to be compatible with the USSOCOM Battle Management System (BMS). The BMS Interface Control Documents will be provided to only those firms that are selected for Phase I

contracts.

PHASE I:

Conduct a feasibility study to assess what is in the art of the possible that satisfies the requirements specified in the above paragraphs entitled “Objective” and “Description.”

The objective of this USSOCOM Phase I SBIR effort is to conduct and document the results of a thorough feasibility study (“Technology Readiness Level 3”) to investigate what is in the art of the possible within the given trade space that will satisfy a needed technology. The feasibility study should investigate all options that meet or exceed the minimum performance parameters specified in this write up. It should also address the risks and potential payoffs of the innovative technology options that are investigated and recommend the option that best achieves the objective of this technology pursuit. The funds obligated on the resulting Phase I SBIR contracts are to be used for the sole purpose of conducting a thorough feasibility study using scientific experiments and laboratory studies as necessary. Operational prototypes will not be developed with USSOCOM SBIR funds during Phase I feasibility studies. Operational prototypes developed with other than SBIR funds that are provided at the end of Phase I feasibility studies will not be considered in deciding what firm(s) will be selected for Phase II.

PHASE II:

Develop, install, and demonstrate a prototype system, determined to be the most feasible solution during the Phase I feasibility study, on a SOCOM aircraft after passing government inspection/certification.

PHASE III DUAL USE APPLICATIONS:

This system could be used in a broad range of military applications where rapid iteration and production are needed. Beyond the palletized munition concepts, the advanced manufacturing and modular design will be critical to all services where rapid and iterative manufacturing processes are required. A weapon or system may be selected for production or follow-on iterations for future applications.

REFERENCES:

1. HERO-SAFE IAW MIL-STD-464D DEPARTMENT OF DEFENSE INTERFACE STANDARD: ELECTROMAGNETIC ENVIRONMENTAL EFFECTS REQUIREMENTS FOR SYSTEMS (24 DEC 2020) FOR HAZARDS OF ELECTROMAGNETIC RADIATION https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=35794
2. MIL-STD-648F DEPARTMENT OF DEFENSE DESIGN CRITERIA STANDARD: SPECIALIZED SHIPPING CONTAINERS (26 MAY 2023) https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=35867
3. MIL-STD-1553C DEPARTMENT OF DEFENSE INTERFACE STANDARD: DIGITAL TIME DIVISION COMMAND/RESPONSE MULTIPLEX DATA BUS (28 FEB 2018) https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=36973
4. MIL-STD-1760E DEPARTMENT OF DEFENSE INTERFACE STANDARD: AIRCRAFT/STORE ELECTRICAL INTERCONNECTION SYSTEM (24 OCT 2007) https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=37120
5. MIL-STD-1791D DEPARTMENT OF DEFENSE INTERFACE STANDARD: DESIGNING FOR INTERNAL AERIAL DELIVERY IN FIXED WING AIRCRAFT (22-JUN-2021)https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=37147
6. MIL-STD-2105E DEPARTMENT OF DEFENSE TEST METHOD STANDARD: HAZARD ASSESSMENT TESTS FOR NON-NUCLEAR MUNITIONS (06 JAN 2022), SECTION 5: SAFETY DROP TEST https://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=72079
7. U.S. Code of Federal Regulations (CFR) Title 49, Subtitle B, Chapter I, Sub-Chapter C, Part 178: Specifications for Packaging <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-C/part-178>

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